

WHAT IS CLAIMED IS:

1. A glycosyl sulfotransferase present in other than its natural environment, wherein said glycosyl sulfotransferase is selected from the group consisting of GST-4 α , GST-4 β , and GST-6.

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2. The glycosyl sulfotransferase according to Claim 1, wherein said glycosyl sulfotransferase is a human glycosyl sulfotransferase.

10 3. The glycosyl sulfotransferase according to Claim 1, wherein said glycosyl sulfotransferase has an amino acid sequence substantially identical to the sequence of SEQ ID NOS:07, 8, 9, 13, or 15.

15 4. A fragment of the glycosyl sulfotransferase according to Claim 1.

5. A nucleic acid present in other than its natural environment, wherein said nucleic acid has a nucleotide sequence encoding a glycosyl sulfotransferase according to Claim 1.

20 6. A nucleic acid according to Claim 5, wherein said nucleic acid has a nucleic acid sequence that is substantially identical to or the same as the nucleotide sequence of SEQ ID NOS:01, 02, 03, 04, 05, 06 10, 12, 18, or 19.

7. A fragment of the nucleic acid according to Claim 5.

25 8. An isolated nucleic acid or mimetic thereof that hybridizes under stringent conditions to the nucleic acid according to Claim 5 or its complementary sequence.

9. An expression cassette comprising a transcriptional initiation region functional in an expression host, a nucleic acid having a nucleotide sequence found in the nucleic acid

according to Claim 5 under the transcriptional regulation of said transcriptional initiation region, and a transcriptional termination region functional in said expression host.

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10. A cell comprising an expression cassette according to Claim 9 as part of an extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.

11. The cellular progeny of the host cell according to Claim 10.

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10 12. A method of producing a glycosyl sulfotransferase according to Claim 1, said method comprising:

growing a cell according to Claim 10, whereby said glycosyl sulfotransferase is expressed; and

isolating said glycosyl sulfotransferase substantially free of other proteins.

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13. A monoclonal antibody binding specifically to a glycosyl sulfotransferase according to Claim 1.

14. The antibody according to Claim 13, wherein said antibody inhibits sulfation 20 activity of said glycosyl sulfotransferase.

15. The monoclonal antibody according to Claim 13, wherein said antibody is a humanized antibody.

25 16. A method for inhibiting a binding event between a selectin and a selectin ligand, said method comprising:

contacting said selectin with a non-sulfated selectin ligand, glycosyl sulfotransferase according to Claim 1 and an agent that inhibits the sulfation activity of said glycosyl sulfotransferase.

17. The method according to Claim 16, wherein said agent is a small molecule.

18. A method of inhibiting a selectin mediated binding event in a mammalian host,
5 said method comprising:

administering to said host an effective amount of a pharmaceutical composition
comprising an active agent that modulates the sulfation activity of a
glycosylsulfotransferase according to Claim 1.

10 19. The method according to Claim 18, wherein said active agent inhibits the sulfation
of activity of said glycosyl sulfotransferase.

20. The method according to Claim 19, wherein said agent is a small molecule.

15 21. The method according to Claim 19, wherein said agent is an antibody.

22. The method according to Claim 19, wherein said active agent modulates the
expression of said sulfotransferase.

20 23. A method of modulating a symptom in a mammalian host of a disease condition
associated with a selectin mediated binding event, said method comprising:

administering to said host a pharmaceutical composition comprising an effective
amount of an active agent that modulates the sulfation activity of a
glycosylsulfotransferase according to Claim 1.

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24. The method according to Claim 23, wherein said symptom is inflammation.

25. A method of diagnosing a disease state in a host related to the abnormal levels of a
glycosyl sulfotransferase according to Claim 1, said method comprising:

determining the amount of an analyte in a sample from said host, wherein said analyte is selected from the group consisting of glycosyl sulfotransferase according to Claim 1 or a nucleic acid related thereto; and

comparing the amount of said analyte in said host sample to a control value.

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26. The method according to Claim 25, wherein said determining is quantitative.

27. The method according to Claim 25, wherein said determining is qualitative.

10 28. A method of determining whether an agent is capable of modulating the activity of glycosylsulfotransferase according to Claim 1, said method comprising:

contacting a glycosylsulfotransferase according to Claim 1 with a sulfate source, an acceptor compound and said agent; and

determining the affect of said agent on said sulfotransferase activity.

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29. A non-human transgenic animal model for gene function, wherein said transgenic animal comprises an introduced alteration in a gene encoding a glycosylsulfotransferase according to Claim 1.

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